EXHIBIT 5

UAMPS
UTAH ASSOCIATED MUNICIPAL POWER SYSTEMS

2825 E. Cottonwood Parkway
Suite 200
Salt Lake City, Utah 84121-7077
Phone: 801-566-3938
Toll Free: 800-872-5961
Fax: 801-561-2687

N0327-016

August 4, 2006

Mr. Rick Sprott
Utah Division of Air Quality
150 North 1950 West
Salt Lake City, Utah 84114

Re: Engineering and Procurement of IPSC Unit 3 Boiler-Supercritical

Dear Mr. Sprott:

We are writing concerning our intent to use a supercritical boiler design for the Intermountain Power Service Corporation (IPSC) Unit # 3 to be located near Delta, Utah. The IPSC Unit 3 Development Committee is preparing bids for the engineering and procurement phase of construction. This letter is part of our efforts to keep the Division apprised of our construction status. As you recall, in December 2002, IPSC submitted a Notice of Intent (NOI) to permit and construct this nominal 950-gross megawatt (MW) (900-net MW) pulverized coal (PC) fired unit. An Approval Order (AO) for the construction of the proposed project was issued by the Utah Division of Air Quality (UDAQ) on October 15, 2004. The AO does not specify the specific type of PC-boiler the facility must use.

As we have proceeded with the highly complex process of developing the plant, we have concluded that a supercritical boiler design is more efficient and better for the environment, that it reflects the latest engineering and market developments for PC facilities, and that it accommodates those who favored a supercritical boiler design in their comments regarding the AO. We believe that use of a supercritical boiler design is consistent with the AO. We are preparing to order this equipment, and want to notify you prior to entering into an Engineering, Procurement and Construction (EPC) contract. We do not believe that any update of the AO is necessary in response to this notification letter. The following information is submitted to explain our conclusion that a supercritical design is consistent with the AO.

What is the difference between a Subcritical and Supercritical Boiler Design?

A supercritical boiler is functionally equivalent to a subcritical boiler except that, in order to create greater efficiencies, a supercritical boiler generates steam at higher pressures and temperatures. This makes supercritical boiler-turbine technology more efficient in converting heat from the burning coal to driving the steam turbine generator. In all other respects, a supercritical boiler is equivalent to a subcritical design.

In a typical fossil-fuel boiler, water-containing tubes line the inside of the furnace walls. Fuel is ignited and burned as it enters the furnace. The burning fuel releases thermal energy, which is absorbed by the water in the tubes. As the temperature of the water rises, the water begins to boil. Water and steam are separated in a boiler drum and the steam, after additional heating in the boiler, is piped from the boiler to the steam turbine.

In a supercritical boiler design, the operating pressure exceeds the critical point of water. The critical point of water is at a pressure of 3,208 pounds per square inch absolute (psia); a point above which distinct liquid and vapor (steam) phases no longer exist, and the water is in a supercritical fluid state. Water and steam separation occurs without a boiler drum and the superheated fluid is sent directly to the steam turbine. A plant operating at this high pressure is more energy efficient and is referred to as a supercritical unit. Other than the higher operating pressure and temperature of steam at the supercritical plant, the design features are equivalent to a subcritical unit.

The subcritical boiler design has a 2520 psig/1050°F/1050°F steam power cycle providing a net plant efficiency (HHV)1 of approximately 35.77 percent, while the supercritical boiler design typically has a 3500 psig/1050°F/1100°F steam power cycle providing a net plant efficiency (HHV) of approximately 36.75 percent. As a result, there is approximately a three percent improvement in heat rate between the two cycles, thereby increasing the power output of the steam turbine-generator for the same coal burned in the boiler. Alternatively, a supercritical boiler can produce the same level of power output using a lesser amount of coal.

Using a supercritical boiler will not increase the heat input rate or the emission limits included in the AO. It will not increase coal consumption limits or alter the fuel types. The supercritical boiler will have the same maximum gross heat input of 9,050 million British Thermal Units per hour (MMbtu/hr), as listed in the AO. No changes will occur to the stack parameters. The stack will be designed with the same exit velocity and temperature as modeled. Therefore no additional dispersion modeling should be required since the emissions are the same and the stack parameters will not change.

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[1] Net Plant Efficiency (HHV) is defined as the net electrical output of the plant divided by the higher heating value fuel consumption of the plant.

Will emissions remain stable or decrease with a supercritical boiler design?

Unit emissions, coal feed rate and heat input to the boiler will in all cases remain at or below the levels specified in the AO. See Exhibit 1 for a comparison of the sub critical design and supercritical boiler design.

Installation of a supercritical boiler will result in a net decrease in emissions as measured in lbs/MWh. Also, as with the subcritical boiler design, the supercritical boiler will use a baghouse for particulate emissions control, a wet limestone scrubber for control of sulfur dioxide and acid gas emissions; and Low NOx Burners/Over-Fire-Air and Selective Catalytic Reduction for NOx emissions control. The design of the emissions control equipment will be the same as for the subcritical design.

Are BACT-Level Emission Controls the same for Supercritical and Subcritical Boilers?

The BACT analysis completed for IPP3 showed that BACT-Level emission controls were the same for both designs. The same list of potential control technologies were considered for each pollutant in the BACT analyses for supercritical units as was used in the IPSC Unit 3 PC BACT analysis. The control effectiveness of the technologies for each pollutant was also the same. No distinction was made between the supercritical PC boiler design of these units and the subcritical PC design of other units when consulting the EPA's RACT/BACT/LAER Clearinghouse (RBLC) and recently approved PSD permits to assist in selecting BACT for the projects. The primary difference between the BACT analysis outcomes for the various units was that a wet limestone FGD process was selected for IPSC Unit 3 with an emission limit of 0.09 Lb/MMBtu on a 30 day rolling average based on burning western bituminous coal versus some of the other units which each selected a dry lime FGD process with an emission limit of 0.10 Lb/MMBtu based on burning subbituminous Powder River Basin (PRB) coal. Low-NOx burners with Selective Catalytic Reduction were selected as BACT for NOx control and fabric filters were selected as BACT for Particulate Matter (PM) control.

The BACT process evaluates pollution control equipment in order to determine a proper BACT emission rate; it does not evaluate the boiler design. UDEQ (and EPA) have repeatedly confirmed this. Whether the boiler is subcritical or supercritical design, the BACT process evaluates the same pollution control equipment. The results of the IPP3 BACT analysis showed that there is no difference in pollution control equipment or BACT emission limits between a subcritical and a supercritical boiler.

Is it necessary to update the existing AO?

We believe it is not necessary to update the AO. When UDAQ issued its AO, DAQE-AN0327010-04, for the new IPSC Unit 3 on October 15, 2004, the AO approved installation of a "Dry-bottom Pulverized Coal Fired Boiler for base load operation with Overfire Air Ports

System" or its equivalent (the NOI described the unit as "an indoor type, subcritical, PC-fired boiler designed for base load operation" and then the AO imposed permit conditions to limit emissions). See AO at Condition #7. The AO does not specify the type of boiler as subcritical or supercritical. The AO only species the maximum heat input rate, 9050 x 106 Btu/hr, and the coal consumption limits, 3,541,248 tons of coal burned per rolling 12-month period. See AO Condition #7 and Condition #14. In addition, the AO limits the fuel to either "bituminous or blend of bituminous and up to thirty percent subbituminous coals." See AO at Condition #19. Selection of a supercritical boiler will not affect or exceed the heat input rate, the consumption limits or the types of fuel specified in the AO. Selection of a supercritical boiler does not constitute a major modification because it does not constitute a physical change or change in operation of an existing source and does not result in a significant emissions increase. Indeed, as noted, the emission limits will be the same for a subcritical or supercritical design. Selection of a supercritical boiler will not affect or exceed the heat input rate, the consumption limits or the types of fuel specified in the AO. In fact, the supercritical boiler will have the same coal consumption rate and the same gross heat input rate allowed in the AO, but it will be more efficient. Accordingly, a supercritical boiler design is consistent with the AO, and was the preferred boiler design of some commentrs during the public comment process for the AO. Therefore, the use of a supercritical boiler is consistent with the AO. This letter is notification to you of our continuing construction efforts, and in the near future the IPSC Unit 3 Development Committee intends to enter into an EPC contract for a supercritical boiler.

If you have any questions or need additional information, please contact me at your earliest convenience. Thank you for your consideration of this matter.

Sincerely,

Douglas C. Hunter
Chairman, Unit 3 Development Committee

Enclosure

Exhibit 1
IPP Unit 3 Project
Unit 3 Boiler Emissions Comparison

	Permit Basis Subcritical Design	Super Critical Boiler Design
Coal Feed Rate (tons/hr)	404	404
Heat Input to Boiler (MMBtu/hr)	9,050	9,050
Annual Capacity Factor (%/yr)	100	100
NOx		
NOx Boiler Emissions (lb/MMBtu)	0.35	0.35
NOx Stack Emissions (lb/MMBtu)	0.070	0.070
SO_2		
SO_2 Boiler Emissions (lb/MMBtu)	1.34	1.34
SO_2 Stack Emissions (lb/MMBtu)	0.090	0.090
CO		
CO Emission Factor (lb/MMBtu)	0.154	0.154
Filterable PM		
Filterable PM Stack Emissions (lb/MMBtu)	0.013	0.013
Filterable PM_{10}		
Filterable PM_{10} Stack Emissions (lb/MMBtu)	0.012	0.012
VOC		
VOC Emissions (lb/MMBtu)	0.00268	0.00268
Sulfuric Acid Mist		
H_2SO_4 Stack Emissions (lb/MMBtu)	0.00439	0.00439
Ammonium Sulfate		
$(NH_4)_2SO_4$ Stack Emissions (lb/MMBtu)	0.00030	0 00030
Hydrogen Chloride		
HCl Stack Emissions (lb/MMBtu)	0.00421	0.00421
HCl Stack Emissions (lb/hr)	38.13000	38.13000
Hydrogen Fluoride		
HF Stack Emissions (lb/MMBtu)	0.001	0.001
Stack Conditions		
Stack Exit Flow (acfm)	3,244,126	3,244,126
Stack Exit Diameter (feet)	31 85	31.85
Stack Exit Temperature (degF)	135	135

EXHIBIT 6

State of Utah

Department of Environmental Quality

Dianne R. Nielson, Ph.D.
Executive Director

DIVISION OF AIR QUALITY
Richard W. Sprott
Director

JON M. HUNTSMAN, JR.
Governor

GARY HERBERT
Lieutenant Governor

DAQE-GN0327016-06

August 17, 2006

Project fee ID:N0327-016

Doug Hunter
Chairman, Unit 3 Development Committee
2825 E. Cottonwood Parkway
Salt Lake City, Utah 84121-7077

Dear Mr. Hunter

Re: Equivalency Determination for the Intermountain Power Service Corporation (IPSC) Unit 3 Pulverized Coal (PC) Fired Boiler

This letter is in response to the letter submitted August 7, 2006, concerning the installation of the IPSC Unit 3 PC boiler at the Intermountain Power Plant, near Delta, Utah . Utah Division of Air Quality agrees, that in accordance with Condition 7 of the Approval Order number DAQE-AN0327010-04*, a supercritical PC boiler is equivalent to the permitted unit.

The supercritical boiler shall operate under the conditions listed in Approval Order number DAQE-AN0327010-04*.

Please direct any technical questions you may have on this letter to Ms. Milka Radulovic. She may be reached at (801) 536-4232.

Sincerely,

Richard W. Sprott, Executive Secretary
Utah Air Quality Board

RWS:MR:kw

EXHIBIT 7

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David Becker USB #11037
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Attorneys for Utah Chapter of the Sierra Club
and Grand Canyon Trust

BEFORE THE UTAH AIR QUALITY BOARD

In Re: Approval Order – PSD Major Modification to Add New Unit 3 at Intermountain Power Generating Station, Millard County, Utah Project Code: N0327-010 DAQE-AN0327010-04	:	REQUEST FOR AGENCY ACTION

FIRST AMENDED REQUEST FOR AGENCY ACTION OR, IN THE ALTERNATIVE, SECOND REQUEST FOR AGENCY ACTION[1]

Pursuant to Utah Administrative Code R307-103-3(1) and Utah Code § 63-46b-3(3), the Utah Chapter of the Sierra Club and Grand Canyon Trust hereby file their Request for Agency Action with Richard W. Sprott, Executive Secretary of the Utah Air Quality Board. The Sierra Club and Grand Canyon Trust seek review of the October 15, 2004 decision by the Utah Division of Air Quality and the Executive Secretary (collectively "UDAQ") to issue an Approval Order (AO) granting a Prevention of Significant Deterioration (PSD) permit to Intermountain Power Service Corporation (IPSC) to construct and operate an additional 950 megawatt (MW) coal-fired power plant Unit #3 at the Intermountain Power Plant in Millard County, Utah (DAQE-AN0327010-04)(Project Code: N0327-010). Pursuant to Utah Admin. Code R307-103-3(2), R307-103-6(2)(c), and R307-103-3, the Sierra Club and Grand Canyon Trust submit with

[1] Sierra Club and Grand Canyon Trust request that they be allowed to amend their November 15, 2004 Request for Agency Action with the additions indicated herein. In the alternative, the conservation groups file this pleading as a Second Request for Agency Action as an independent Second Request for Agency Action **without** withdrawing their November 15, 2005 Request for Agency Action. A Statement of Standing/Petition to Intervene in Support of Second Request for Agency Action is attached.

2. UDAQ Failed to Consider Adequately a Supercritical PC Boiler in its BACT Determination and Failed to Require Installation of this Technology for IPP Unit 3.

For essentially the same reasons provided above, UDAQ's consideration of supercritical PC boiler technology is legally inadequate and therefore the AO is fatally flawed. Supercritical boilers are up to 7% or more efficient than subcritical boilers. As a result, they use less fuel and emit less carbon dioxide. Further, such supercritical boilers achieve up to 17% lower emission rates of carbon monoxide (CO), nitrogen oxides (NOx) and sulfur oxides (SOx), as well as up to 15% lower PM emission rates.

Yet, UDAQ argues that it need not analyze this technology as part of its BACT determination. Response to Comments at 8, # 15. The agency's conclusion is flawed. Consideration of inherently lower emitting power production processes and techniques such as supercritical boiler is required by Utah Admin. Code R307-101-2, the state regulation defining BACT. Legislative history, EPA guidance, the actions of regulators in other states, and other relevant considerations additionally confirm that because consideration of the process design is a necessary part of the BACT analysis, thorough evaluation of this technology is mandated.

To the extent that UDAQ suggests that it has now revised its review of supercritical boiler technology for the purposes of BACT analysis, Response to Comments at 8, #15, this revision is inadequate for the purposes of state and federal law. For example, this review was not subject to public notice and comment. Moreover, because the Sierra Club and Grand Canyon Trust have not had the opportunity to assess the revised analysis, they reserve the right to challenge its content. Because UDAQ states that this revised analysis determined that a supercritical boiler is not appropriate for IPP Unit 3, the conclusions of the evaluation are incorrect.

Rather, evaluation of supercritical boilers is required, as this technology, although inferior to IGCC, is an available technology, is technically feasible for the IPP project, and is a better ranked control technology than that currently proposed for Unit 3. In sum, UDAQ is required to consider supercritical boiler technology exhaustively as part of its BACT analysis. The revised analysis errs in that it has not been subject to public comment and it concludes this technology is not appropriate for the IPP Unit 3. As a result, UDAQ has failed its statutory and regulatory duties to examine supercritical boiler technology adequately and to require the IPSC to utilize a supercritical boiler pursuant to a BACT determination. Until UDAQ takes these steps, the AO is illegal and should be rescinded and/or remanded to the agency for proper BACT analysis.

3. UDAQ Erroneously Failed to Address Carbon Dioxide and Other Greenhouse Gas Emissions.

In approving the construction and operation of IPP Unit 3, UDAQ did not address or set limits on carbon dioxide (CO_2) or other greenhouse gas emissions from the new unit. Typically, coal-fired boilers emit significant greenhouse gases. Yet, UDAQ declined to address greenhouse

EXHIBIT 8

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BEFORE THE UTAH AIR QUALITY BOARD

In Re: Approval Order – PSD Major Modification to Add New Unit 3 at Intermountain Power Generating Station, Millard County, Utah Project Code: N0327-010 DAQE-AN0327010-04	:	DECLARATION OF WALTER KOUCKY

I, Walter Koucky, declare as follows:

1. The facts set forth in this declaration are based upon my personal knowledge. If called as a witness, I could and would testify to these facts. As to those matters which reflect an opinion, they reflect my professional opinion and judgment on the matter.

2. I am an adult citizen of the United States and currently reside in Cincinnati, Ohio.

3. I have worked in the field of air pollution control permitting since 1984. During that time, I have worked on permits for individual facilities. I have also supported U.S. Environmental Protection Agency (EPA) national efforts in both regulatory development and national enforcement initiatives. Attached is

my curriculum vitae that gives the specifics of my education and as well as my technical work involving New Source Review and other permit programs.

4. During my career, I have also developed expertise in the calculation of emissions, New Source Review permitting and evaluation of air pollution controls. Attached is my curriculum vitae that gives the specifics of my technical work in this field.

5. In its August 4, 2006 letter to Rick Sprott, Utah Division of Air Quality, the Utah Associated Municipal Power Systems (UAMPS) compares a supercritical pulverized coal boiler design to a subcritical pulverized coal boiler design. In doing so, UAMPS states: "Installation of a supercritical boiler will result in a net decrease in emissions as measured in lbs/MWh." AR IPSC 4475. I generally agree with this statement. Because a supercritical boiler is more thermally efficient, this technology should produces lower emissions of criteria pollutants and carbon-dioxide per megawatt generated when compared to a subcritical .boiler in similar operation.

6. The change from a subcritical boiler to a supercritical boiler will affect emissions of criteria pollutants as well as carbon dioxide from Unit 3. Although the overall higher thermal efficiency is expected to reduce emissions of criteria pollutants, this assumption is not guaranteed in all situations. Emissions from all operating modes and all supporting systems must be fully investigated on a site specific basis considering specific fuels, equipment designs and environmental impacts.

7. EPA demonstrated in a July 2006 Final Report entitled "Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle

and Pulverized Coal Technologies,"[1] that supercritical PC technology results in lower expected emissions expressed in pounds per megawatt hour. Ultra-supercritical boiler designs result in even lower expected emissions and higher thermal efficiencies. As the selected boiler technology is a component of the BACT [best available control technology] determination, the State of Utah is voiding the BACT determination by selecting a boiler different technology. Before allowing a modification to the permitted technology, the State of Utah must determine if ultra-supercritical pulverized coal technology or another technology is BACT.

8. UAMPS also states that: "The BACT [best available control technology] analysis completed for IPP3 [Unit 3] showed that BACT-Level emission controls were the same for" supercritical and subcritical boilers. AR IPSC 4475. This statement is wrong insofar as proper BACT analysis would show substantially reduced emission controls for a supercritical boiler. This statement is inconsistent with the statement that "Installation of a supercritical boiler will result in a net decrease in emissions as measured in lbs/MWh." AR IPSC 4475. This is also inconsistent with the requirement that BACT be the "maximum degree of reduction of each pollutant subject to the Act" [UAC R307-101-2]. The existing BACT analysis is clearly flawed in that it failed to require a technology that resulted in lower hourly emissions.

9. A proper BACT analysis considers technological feasibility and impacts, including economic, together with control effectiveness to evaluate the most

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[1] This report is found at http://www.epa.gov/air/caaac/coaltech/2007_01_epaigcc.pdf and portions are attached to this sworn statement.

effective control options and determine emission limitations for a project. The current proposed technology change, from a subcritical to a supercritical boiler design, demonstrates that the supercritical technology is both technically feasible and not an excessive economic burden. As described above in Comment #8, the supercritical boiler has lower hourly emissions. This demonstrates that the previous BACT analysis was flawed in not requiring lower hourly emissions rates. Rather than allowing increased generation for the Intermountain 3 project, the State of Utah should correct the errant BACT determination and require more stringent emissions limitations for this project.

I declare under penalty of perjury that the foregoing is true and correct and that this declaration was executed on February 26, 2007, in Cincinnati, Ohio.

Walter F. Koucky

United States Environmental Protection Agency

EPA-430/R-06/006
July 2006

Final Report

Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies

Section 1 Process Design

Section 1 presents the design criteria and methodologies used in evaluating various processes and technologies discussed in this report.

1.1 Introduction

The U.S. Environmental Protection Agency (EPA) sponsored this study to evaluate and compare environmental impacts and costs of integrated gasification combined cycle (IGCC) and pulverized coal (PC) power plants. These estimated impacts and costs for the technologies will assist various government agencies to better understand the potential effects of rulemaking and regulatory actions on application of the technologies in practical, real-world conditions.

Results are based upon information collected in one of two ways. First, in-house Nexant software, experience with similar evaluations, and literature were used to estimate performance and costs of the two technologies. Second, equipment and process suppliers were contacted for updated information specific to the environmental control aspects of the plants. The suppliers' data were used to refine the first estimates and improve the performance and cost estimates of the environmental controls. Seeking new data from gasification technology developers was not within the scope of this report; it was judged that sufficient published and in-house data was available to assess gasification technology performance and cost.

1.2 Design Basis

The study examines five power generation technologies and three different coals. All the modeled power plants are sized for a net power generation of 500 MW. They are configured with equipment and processes that are judged available for deployment in power generation plants in the 2010 time period. The modeled plants include the following design features:

- IGCC plants with steam conditions of 1,800 psig and 1,000/1,000 °F. The coal-water slurry feed type of gasifier represented by GE Energy (ex-ChevronTexaco) is used with two coals, and a solid feed gasifier such as Shell gasification is used with lignite.

- PC plants with subcritical steam conditions of 2,400 psig and 1,000/1,000°F single reheat.

- PC plants with supercritical steam conditions of 3,500 psig and 1,050/1,050 °F double reheat.

- PC plants with ultra-supercritical steam conditions of 4,500 psig and 1,100/1,100 °F double reheat.

Exhibit 3-13, Subcritical Pulverized Coal Plant Environmental Impacts

Subcritical PC	Bituminous			Subbituminous			Lignite		
Air Pollutants	ppmvd @15% O_2	lb/MWh	lb/MMBtu	ppmvd @15% O_2	lb/MWh	lb/MMBtu	Ppmvd @15% O_2	lb/MWh	lb/MMBtu
NO_X (NO_2) [1]	14	0.528	0.06	15	0.543	0.06	20	0.568	0.06
SO_2 [1]	15	0.757	0.086	11	0.589	0.065	10	0.814	0.086
CO [2]	39	0.880	0.10	40	0.906	0.10	55	0.947	0.10
Volatile Organic Compounds[2]		0.021	0.0024		0.025	0.0027		0.026	0.0027
Particulate Matter (overall) [1]		0.106	0.012		0.109	0.012		0.114	0.012
Particulate Matter (PM_{10}) [1]		0.106	0.012		0.109	0.012		0.114	0.012
Lead (Pb) [2]		3.40×10^{-5} to 18×10^{-5}	$3.86. \times 10^{-6}$ to 20×10^{-6}		18.1×10^{-5} to 23×0^{-5}	20×10^{-6} to 25.6×10^{-6}		18.9×10^{-5} to 24×10^{-5}	20×10^{-6} to 25.6×10^{-6}
Mercury		6.69×10^{-6}	0.76×10^{-6}		3.80×10^{-6}	0.42×10^{-6}		6.9×10^{-6}	0.73×10^{-6}
Acid Mist		0.088	0.010		0.018	0.002		0.038	0.004
Other Environmental Impacts		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu
CO_2 [1]		1,777	202		1,893	209		1,998	211
Solid Waste (ash/FGD waste)		176	20		73	8		331	35
Raw Water Use		9,260	1,050		9,520	1,050		9,960	1,050
Sulfur Removal, %		98			87			95.8	
Particulates, Removal, %		99.8			99.7			99.9	

1. Calculated based on air permit data, discussions with equipment suppliers, literature, and process model software.
2. Estimated from review of air permit data.

Exhibit 3-14, Supercritical Pulverized Coal Plant Environmental Impacts

Supercritical PC	Bituminous			Subbituminous			Lignite		
Criteria Pollutants	ppmvd @15% O_2	lb/MWh	lb/MMBtu	ppmvd @15% O_2	lb/MWh	lb/MMBtu	ppmvd @15% O_2	lb/MWh	lb/MMBtu
NO_X (NO_2) [1]	14	0.494	0.06	15	0.500	0.06	14	0.524	0.06
SO_2 [1]	15	0.709	0.086	11	0.541	0.065	7	0.751	0.086
CO [2]	39	0.824	0.10	40	0.832	0.10	39	0.873	0.10
Volatile Organic Compounds[2]		0.020	0.0024		0.023	0.0027		0.024	0.0027
Particulate Matter (overall) [1]		0.099	0.012		0.100	0.012		0.105	0.012
Particulate Matter (PM_{10}) [1]		0.099	0.012		0.100	0.012		0.105	0.012
Lead (Pb) [2]		3.18×10^{-5} to 17×10^{-5}	3.86×10^{-6} to 20×10^{-6}		16.6×10^{-5} to 21×10^{-5}	20×10^{-6} to 25.6×10^{-6}		17.5×10^{-5} to 22×10^{-5}	20×10^{-6} to 25.6×10^{-6}
Mercury		6.26×10^{-6}	0.76×10^{-6}		3.49×10^{-6}	0.42×10^{-6}		6.37×10^{-6}	0.73×10^{-6}
Acid Mist		0.082	0.010		0.017	0.002		0.035	0.004
Other Environmental Impacts		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu
CO_2 [1]		1,665	202		1,739	209		1,842	211
Solid Waste (ash/FGD wastes)		165	20		67	8		306	35
Raw Water Use		8,640	1,050		8,830	1,060		9,200	1,055
Sulfur Removal, %		98			87			95.8	
Particulates Removal, %		99.8			99.7			99.9	

1. Calculated based on air permit data, discussions with equipment suppliers, literature, and process model software.
2. Estimated from review of air permit data.

The high amount of ash (slag) in lignite makes it unsuitable for GE Energy's entrained flow gasifier, because heavy slagging of the radiant heat exchanger slows heat removal and exchange. Also, the need for high ash content slurry to be removed from the bottom of the gasifier which retains significant heat energy is another major source of heat loss. These two factors have significant impact on the thermal efficiency of the gasifier and overall IGCC plant. Although the GE Energy gasifier can handle high moisture coal, the efficiency loss from the ash content of lignite is significant enough to make it unattractive.

The Shell gasifier has a refractory-lined water wall for syngas heat removal which can handle high loading of ash and still be effective in heat transfer. There is no significant loss in efficiency in Shell gasifier.

Greater details of energy and material balances for the IGCC plants are included in Appendix C of this report.

Exhibits 3-4, 3-5, and 3-6 present summary performance data for the PC units and the three coals.

Exhibit 3-4 Subcritical Pulverized Coal Unit Performance Estimates

Subcritical PC	Bituminous	Subbituminous	Lignite
Net Thermal Efficiency, % HHV	35.9	34.8	33.1
Net Heat Rate, Btu/kWh (HHV)	9,500	9,800	10,300
Gross Power, MW	540	541	544
Internal Power, MW	40	41	44
Fuel required, lb/h	407,143	556,818	815,906
Net Power, MW	500	500	500

Exhibit 3-5 Supercritical Pulverized Coal Unit Performance Estimates

Supercritical PC	Bituminous	Subbituminous	Lignite
Net Thermal Efficiency, % HHV	38.3	37.9	35.9
Net Heat Rate, Btu/kWh (HHV)	8,900	9,000	9,500
Gross Power, MW	540	541	544
Internal Power, MW	40	41	44
Fuel required, lb/h	381,418	517,045	752,535
Net Power, MW	500	500	500

EXHIBIT 9

EPA United States Environmental Protection Agency

EPA-430/R-06/006
July 2006

Final Report

Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies

Section 1 Process Design

Section 1 presents the design criteria and methodologies used in evaluating various processes and technologies discussed in this report.

1.1 Introduction

The U.S. Environmental Protection Agency (EPA) sponsored this study to evaluate and compare environmental impacts and costs of integrated gasification combined cycle (IGCC) and pulverized coal (PC) power plants. These estimated impacts and costs for the technologies will assist various government agencies to better understand the potential effects of rulemaking and regulatory actions on application of the technologies in practical, real-world conditions.

Results are based upon information collected in one of two ways. First, in-house Nexant software, experience with similar evaluations, and literature were used to estimate performance and costs of the two technologies. Second, equipment and process suppliers were contacted for updated information specific to the environmental control aspects of the plants. The suppliers' data were used to refine the first estimates and improve the performance and cost estimates of the environmental controls. Seeking new data from gasification technology developers was not within the scope of this report; it was judged that sufficient published and in-house data was available to assess gasification technology performance and cost.

1.2 Design Basis

The study examines five power generation technologies and three different coals. All the modeled power plants are sized for a net power generation of 500 MW. They are configured with equipment and processes that are judged available for deployment in power generation plants in the 2010 time period. The modeled plants include the following design features:

- IGCC plants with steam conditions of 1,800 psig and 1,000/1,000 °F. The coal-water slurry feed type of gasifier represented by GE Energy (ex-ChevronTexaco) is used with two coals, and a solid feed gasifier such as Shell gasification is used with lignite.

- PC plants with subcritical steam conditions of 2,400 psig and 1,000/1,000°F single reheat.

- PC plants with supercritical steam conditions of 3,500 psig and 1,050/1,050 °F double reheat.

- PC plants with ultra-supercritical steam conditions of 4,500 psig and 1,100/1,100 °F double reheat.

Exhibit 3-13, Subcritical Pulverized Coal Plant Environmental Impacts

Subcritical PC	Bituminous			Subbituminous			Lignite		
Air Pollutants	ppmvd @15% O_2	lb/MWh	lb/MMBtu	ppmvd @15% O_2	lb/MWh	lb/MMBtu	Ppmvd @15% O_2	lb/MWh	lb/MMBtu
NO_X (NO_2) [1]	14	0.528	0.06	15	0.543	0.06	20	0.568	0.06
SO_2 [1]	15	0.757	0.086	11	0.589	0.065	10	0.814	0.086
CO [2]	39	0.880	0.10	40	0.906	0.10	55	0.947	0.10
Volatile Organic Compounds[2]		0.021	0.0024		0.025	0.0027		0.026	0.0027
Particulate Matter (overall) [1]		0.106	0.012		0.109	0.012		0.114	0.012
Particulate Matter (PM_{10}) [1]		0.106	0.012		0.109	0.012		0.114	0.012
Lead (Pb) [2]		3.40×10^{-5} to 18×10^{-5}	$3.86. \times 10^{-6}$ to 20×10^{-6}		18.1×10^{-5} to 23×0^{-5}	20×10^{-6} to 25.6×10^{-6}		18.9×10^{-5} to 24×10^{-5}	20×10^{-6} to 25.6×10^{-6}
Mercury		6.69×10^{-6}	0.76×10^{-6}		3.80×10^{-6}	0.42×10^{-6}		6.9×10^{-6}	0.73×10^{-6}
Acid Mist		0.088	0.010		0.018	0.002		0.038	0.004
Other Environmental Impacts		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu
CO_2 [1]		1,777	202		1,893	209		1,998	211
Solid Waste (ash/FGD waste)		176	20		73	8		331	35
Raw Water Use		9,260	1,050		9,520	1,050		9,960	1,050
Sulfur Removal, %		98			87			95.8	
Particulates, Removal, %		99.8			99.7			99.9	

1. Calculated based on air permit data, discussions with equipment suppliers, literature, and process model software.
2. Estimated from review of air permit data.

Exhibit 3-14, Supercritical Pulverized Coal Plant Environmental Impacts

Supercritical PC	Bituminous			Subbituminous			Lignite		
Criteria Pollutants	ppmvd @15% O_2	lb/MWh	lb/MMBtu	ppmvd @15% O_2	lb/MWh	lb/MMBtu	ppmvd @15% O_2	lb/MWh	lb/MMBtu
NO_X (NO_2) [1]	14	0.494	0.06	15	0.500	0.06	14	0.524	0.06
SO_2 [1]	15	0.709	0.086	11	0.541	0.065	7	0.751	0.086
CO [2]	39	0.824	0.10	40	0.832	0.10	39	0.873	0.10
Volatile Organic Compounds[2]		0.020	0.0024		0.023	0.0027		0.024	0.0027
Particulate Matter (overall) [1]		0.099	0.012		0.100	0.012		0.105	0.012
Particulate Matter (PM_{10}) [1]		0.099	0.012		0.100	0.012		0.105	0.012
Lead (Pb) [2]		3.18×10^{-5} to 17×10^{-5}	$3.86. \times 10^{-6}$ to 20×10^{-6}		16.6×10^{-5} to 21×10^{-5}	20×10^{-6} to 25.6×10^{-6}		17.5×10^{-5} to 22×10^{-5}	20×10^{-6} to 25.6×10^{-6}
Mercury		6.26×10^{-6}	0.76×10^{-6}		3.49×10^{-6}	0.42×10^{-6}		6.37×10^{-6}	0.73×10^{-6}
Acid Mist		0.082	0.010		0.017	0.002		0.035	0.004
Other Environmental Impacts		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu
CO_2 [1]		1,665	202		1,739	209		1,842	211
Solid Waste (ash/FGD wastes)		165	20		67	8		306	35
Raw Water Use		8,640	1,050		8,830	1,060		9,200	1,055
Sulfur Removal, %		98			87			95.8	
Particulates Removal, %		99.8			99.7			99.9	

1. Calculated based on air permit data, discussions with equipment suppliers, literature, and process model software.
2. Estimated from review of air permit data.

The high amount of ash (slag) in lignite makes it unsuitable for GE Energy's entrained flow gasifier, because heavy slagging of the radiant heat exchanger slows heat removal and exchange. Also, the need for high ash content slurry to be removed from the bottom of the gasifier which retains significant heat energy is another major source of heat loss. These two factors have significant impact on the thermal efficiency of the gasifier and overall IGCC plant. Although the GE Energy gasifier can handle high moisture coal, the efficiency loss from the ash content of lignite is significant enough to make it unattractive.

The Shell gasifier has a refractory-lined water wall for syngas heat removal which can handle high loading of ash and still be effective in heat transfer. There is no significant loss in efficiency in Shell gasifier.

Greater details of energy and material balances for the IGCC plants are included in Appendix C of this report.

Exhibits 3-4, 3-5, and 3-6 present summary performance data for the PC units and the three coals.

Exhibit 3-4 Subcritical Pulverized Coal Unit Performance Estimates

Subcritical PC	Bituminous	Subbituminous	Lignite
Net Thermal Efficiency, % HHV	35.9	34.8	33.1
Net Heat Rate, Btu/kWh (HHV)	9,500	9,800	10,300
Gross Power, MW	540	541	544
Internal Power, MW	40	41	44
Fuel required, lb/h	407,143	556,818	815,906
Net Power, MW	500	500	500

Exhibit 3-5 Supercritical Pulverized Coal Unit Performance Estimates

Supercritical PC	Bituminous	Subbituminous	Lignite
Net Thermal Efficiency, % HHV	38.3	37.9	35.9
Net Heat Rate, Btu/kWh (HHV)	8,900	9,000	9,500
Gross Power, MW	540	541	544
Internal Power, MW	40	41	44
Fuel required, lb/h	381,418	517,045	752,535
Net Power, MW	500	500	500

<u>EXHIBIT 10</u>

Joro Walker, USB #6676
David Becker USB #11037
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Salt Lake City, Utah 84111
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Fax: 801.486.4233
Attorneys for Utah Chapter of the Sierra Club

BEFORE THE UTAH AIR QUALITY BOARD

In Re: Approval Order – PSD Major	:	
Modification to Add New Unit 3 at	:	DECLARATION OF
Intermountain Power Generating	:	JOHN W. THOMPSON
Station, Millard County, Utah	:	
Project Code: N0327-010	:	
DAQE-AN0327010-04	:	

I, John W. Thompson, declare as follows:

1. The facts set forth in this declaration are based upon my personal knowledge. If called as a witness, I could and would testify to these facts. As to those matters which reflect an opinion, they reflect my professional opinion and judgment on the matter.

2. I am an adult citizen of the United States and currently reside in Makanda, Illinois.

3. I have a B.S. in Chemical Engineering from the University of Illinois, and a Masters of Business Administration from the Olin School of Business at Washington University, St. Louis. My employer, the Clean Air Task Force (CATF), is a national nonprofit environmental organization dedicated to

restoring clean air through scientific research, public education, and legal advocacy. CATF is comprised of approximately twenty professionals with backgrounds in science, engineering, law, economics and public outreach headquartered in Boston and operates with a national focus on clean air issues. CATF is a leading environmental organization addressing air quality and atmospheric protection issues, and its work is widely respected in government and industry.

2. My work for CATF addresses several areas, including: preparing comments on coal-fueled power plant air permits, evaluating the economics and environmental characteristics of advanced coal technologies, educating the public about health impacts of power plant pollution, and working to develop state and federal rules on power plant emissions.

3. I frequently address conferences and workshops, particularly with respect to Integrated Gasification Combined Cycle (IGCC) and pulverized coal technology. In October 2003, I made a presentation at the U.S. Department of Energy's Twentieth Annual International Pittsburg Coal Conference, on the topic of "IGCC as LAER/BACT for the Production of Electricity from Coal." In April 2004, I made a presentation on IGCC environmental characteristics and economics to the Western Governors' Association Energy Summit. In June 2004, I addressed the Workshop on Gasification Technologies jointly sponsored by the U.S. Department of Energy, the National Association of Regulatory Commissioners, the Gasification Technologies Council, and the Southern States Energy Board. My presentation was titled "The BACT Analysis: Does IGCC Meet the Test?" In August 2004, I made a presentation

at the USEPA's Air Innovations Conference on the topic of IGCC. In October 2004, I made a presentation to the annual meeting of STAPPA/ALAPCO, a national association of state and tribal air directors, on the topic of IGCC and pulverized coal. My presentation was entitled "Integrated Gasification Combined Cycle (IGCC): Environmental Impacts and Policy Implications." In 2005, I addressed the Platts IGCC Symposium. My presentation was entitled "Integrated Gasification combined Cycle (IGCC) Environmental Performance." I also addressed a gasification workshop sponsored by the Gasification Technologies Council in April 2005 in Knoxville TN on IGCC. In November 2005, I spoke on IGCC and carbon sequestration topics at Infocast's IGCC Project Development and Finance Seminar and on "Public Perception of Gasification" at MIT's Carbon Sequestration Forum VI. In May 2006, I addressed Platts 2nd Annual IGCC Symposium on the topic of gasification performance. In February 2007, I addressed the USEPA's Advanced Coal Technologies Working Group on Advanced Coal technologies.

4. In my work with CATF, I have prepared and submitted comments on draft air permits to state regulators for both pulverized coal and IGCC plants. I have also testified as an expert witness on air permit appeals in Montana, Texas, and Wisconsin. I have also testified at a Colorado Public Utilities Commission proceeding also on pulverized coal plant hearings.

5. I was also co-chair the Technologies Subcommittee of the Western Governors Association's Clean Coal Task Force, where I reviewed the cost and performance of numerous current and future coal technologies.

6. Prior to joining the Task Force, I was Director of Clean Air Programs at the Illinois Environmental Council. For thirteen years, I was Executive Director of the Central States Education Center in Champaign, Illinois, an organization that developed advocacy and technical assistance programs on solid and hazardous waste issues. I began my career as a process development engineer with the Procter & Gamble CompanyAttached is my curriculum vitae that gives the specifics of my education and as well as my technical work involvingcoal issues.

7. In its August 4, 2006 letter to Rick Sprott, Utah Division of Air Quality, the Utah Associated Municipal Power Systems (UAMPS) compares a supercritical boiler design to a subcritical boiler design. In doing so, UAMPS states that "there is approximately a three percent improvement in heat rate between" the net plant efficiency (HHV) of a supercritical and a subcritical boiler. AR IPSC 4475. I disagree with this statement. This statement represents the increased efficiency for supercritical boilers over subcritical boilers as lower than the efficiency gains typical for supercritical boilers. I estimate the actual increase in efficiency to be more accurately represented in analysis conducted by the United States EPA.

8. In its July 2006 Final Report entitled "Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies,"[1] EPA compared the efficiency of subcritical and supercritical boilers in terms of net thermal efficiency and heat rate, % HHV. EPA Report

[1] This report is found at http://www.epa.gov/air/caaac/coaltech/2007_01_epaigcc.pdf and portions are attached to this sworn statement.

at 3-3. In that comparison, the federal agency determined that a supercritical unit using bituminous coal has a net thermal efficiency of 38.3% and heat rate of 8900 Btu/kWh, and for subbituminous coal, a thermal efficiency of 37.9% and heat rate 9000 Btu/kWh. EPA Doc at 3-3.

9. Using UAMPS's figure of 35.77% for the efficiency of a subcritical boiler (with no coal type specified), and EPA's figures for a supercritical boiler, reveals a efficiency increase of about 7% for a supercritical boiler burning bituminous coal and a 6% efficiency for subbituminous coal. EPA Doc at 3-3; AR at IPSC4474.

10. Using EPA's figures for the pulverized coal boiler with subcritical steam cycle leads to a net efficiency increase of 6.7% and 8.9% from a subcritical to supercritical boiler using bituminous and subbituminous coal respectively. EPA Doc at 3-3; AR at IPSC4474.

11. Starting with a 950 megawatt facility, an increase in efficiency of 6.74%, keeping heat input the same, will mean that the facility will produce 1014 megawatts. An increased efficiency of 8.88%, keeping heat input the same, will mean that the facility will produce 1034 megawatts. The impact of various other efficiency rate increases on power output can be calculated by adding the additional megawatts generated due to efficiency (the percentage multiplied by 950 megawatts) to 950 megawatts.

12. A 950 megawatt facility is not equivalent to a 1014 or a 1034 megawatt facility. Equipment that produces 1014 or 1034 megawatts is not equivalent to equipment that produces 950 megawatts with the same heat input.

13. Even if the statement in the UAMPS letter that "there is approximately a three percent improvement in heat rate between" the net plant efficiency (HHV) of a supercritical and a subcritical boiler were true, a 3% increased efficiency, keeping heat input the same, will mean that the facility will produce 979 megawatts.

14. A 950 megawatt facility is not equivalent to a 979 megawatt facility. Equipment that produces 979 megawatts is not equivalent to equipment that produces 950 megawatts with the same heat input.

I declare under penalty of perjury that the foregoing is true and correct and that this declaration was executed on February 26, 2007, in Carbondale, Illinois.

John W. Thompson

United States Environmental Protection Agency

EPA-430/R-06/006
July 2006

Final Report

Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies

Section 1 Process Design

Section 1 presents the design criteria and methodologies used in evaluating various processes and technologies discussed in this report.

1.1 Introduction

The U.S. Environmental Protection Agency (EPA) sponsored this study to evaluate and compare environmental impacts and costs of integrated gasification combined cycle (IGCC) and pulverized coal (PC) power plants. These estimated impacts and costs for the technologies will assist various government agencies to better understand the potential effects of rulemaking and regulatory actions on application of the technologies in practical, real-world conditions.

Results are based upon information collected in one of two ways. First, in-house Nexant software, experience with similar evaluations, and literature were used to estimate performance and costs of the two technologies. Second, equipment and process suppliers were contacted for updated information specific to the environmental control aspects of the plants. The suppliers' data were used to refine the first estimates and improve the performance and cost estimates of the environmental controls. Seeking new data from gasification technology developers was not within the scope of this report; it was judged that sufficient published and in-house data was available to assess gasification technology performance and cost.

1.2 Design Basis

The study examines five power generation technologies and three different coals. All the modeled power plants are sized for a net power generation of 500 MW. They are configured with equipment and processes that are judged available for deployment in power generation plants in the 2010 time period. The modeled plants include the following design features:

- IGCC plants with steam conditions of 1,800 psig and 1,000/1,000 °F. The coal-water slurry feed type of gasifier represented by GE Energy (ex-ChevronTexaco) is used with two coals, and a solid feed gasifier such as Shell gasification is used with lignite.

- PC plants with subcritical steam conditions of 2,400 psig and 1,000/1,000°F single reheat.

- PC plants with supercritical steam conditions of 3,500 psig and 1,050/1,050 °F double reheat.

- PC plants with ultra-supercritical steam conditions of 4,500 psig and 1,100/1,100 °F double reheat.

Exhibit 3-13, Subcritical Pulverized Coal Plant Environmental Impacts

Subcritical PC	Bituminous			Subbituminous			Lignite		
Air Pollutants	ppmvd @15% O_2	lb/MWh	lb/MMBtu	ppmvd @15% O_2	lb/MWh	lb/MMBtu	Ppmvd @15% O_2	lb/MWh	lb/MMBtu
NO_X (NO_2) [1]	14	0.528	0.06	15	0.543	0.06	20	0.568	0.06
SO_2 [1]	15	0.757	0.086	11	0.589	0.065	10	0.814	0.086
CO [2]	39	0.880	0.10	40	0.906	0.10	55	0.947	0.10
Volatile Organic Compounds[2]		0.021	0.0024		0.025	0.0027		0.026	0.0027
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Mercury		6.69×10^{-6}	0.76×10^{-6}		3.80×10^{-6}	0.42×10^{-6}		6.9×10^{-6}	0.73×10^{-6}
Acid Mist		0.088	0.010		0.018	0.002		0.038	0.004
Other Environmental Impacts		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu
CO_2 [1]		1,777	202		1,893	209		1,998	211
Solid Waste (ash/FGD waste)		176	20		73	8		331	35
Raw Water Use		9,260	1,050		9,520	1,050		9,960	1,050
Sulfur Removal, %		98			87			95.8	
Particulates, Removal, %		99.8			99.7			99.9	

1. Calculated based on air permit data, discussions with equipment suppliers, literature, and process model software.
2. Estimated from review of air permit data.

Exhibit 3-14, Supercritical Pulverized Coal Plant Environmental Impacts

Supercritical PC	Bituminous			Subbituminous			Lignite		
Criteria Pollutants	ppmvd @15% O_2	lb/MWh	lb/MMBtu	ppmvd @15% O_2	lb/MWh	lb/MMBtu	ppmvd @15% O_2	lb/MWh	lb/MMBtu
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SO_2 [1]	15	0.709	0.086	11	0.541	0.065	7	0.751	0.086
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Mercury		6.26×10^{-6}	0.76×10^{-6}		3.49×10^{-6}	0.42×10^{-6}		6.37×10^{-6}	0.73×10^{-6}
Acid Mist		0.082	0.010		0.017	0.002		0.035	0.004
Other Environmental Impacts		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu		lb/MWh	lb/MMBtu
CO_2 [1]		1,665	202		1,739	209		1,842	211
Solid Waste (ash/FGD wastes)		165	20		67	8		306	35
Raw Water Use		8,640	1,050		8,830	1,060		9,200	1,055
Sulfur Removal, %		98			87			95.8	
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2. Estimated from review of air permit data.

The high amount of ash (slag) in lignite makes it unsuitable for GE Energy's entrained flow gasifier, because heavy slagging of the radiant heat exchanger slows heat removal and exchange. Also, the need for high ash content slurry to be removed from the bottom of the gasifier which retains significant heat energy is another major source of heat loss. These two factors have significant impact on the thermal efficiency of the gasifier and overall IGCC plant. Although the GE Energy gasifier can handle high moisture coal, the efficiency loss from the ash content of lignite is significant enough to make it unattractive.

The Shell gasifier has a refractory-lined water wall for syngas heat removal which can handle high loading of ash and still be effective in heat transfer. There is no significant loss in efficiency in Shell gasifier.

Greater details of energy and material balances for the IGCC plants are included in Appendix C of this report.

Exhibits 3-4, 3-5, and 3-6 present summary performance data for the PC units and the three coals.

Exhibit 3-4 Subcritical Pulverized Coal Unit Performance Estimates

Subcritical PC	Bituminous	Subbituminous	Lignite
Net Thermal Efficiency, % HHV	35.9	34.8	33.1
Net Heat Rate, Btu/kWh (HHV)	9,500	9,800	10,300
Gross Power, MW	540	541	544
Internal Power, MW	40	41	44
Fuel required, lb/h	407,143	556,818	815,906
Net Power, MW	500	500	500

Exhibit 3-5 Supercritical Pulverized Coal Unit Performance Estimates

Supercritical PC	Bituminous	Subbituminous	Lignite
Net Thermal Efficiency, % HHV	38.3	37.9	35.9
Net Heat Rate, Btu/kWh (HHV)	8,900	9,000	9,500
Gross Power, MW	540	541	544
Internal Power, MW	40	41	44
Fuel required, lb/h	381,418	517,045	752,535
Net Power, MW	500	500	500

John W. Thompson
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Carbondale, Illinois 62901
Phone (618) 457-0137
Email: jthompson@catf.us

EDUCATION

Master of Business Administration, Washington University, Olin School of Business Executive Program, St. Louis MO, 1999

Bachelor of Science in Chemical Engineering, University of Illinois, Champaign-Urbana, 1982. Graduated with Distinction

EMPLOYMENT

Clean Air Task Force, Boston, MA *Oct 2001- Present*
Director, Coal Transition Project

- Review new conventional coal-fired power plants permits
- Evaluate economics and environmental characteristics of advanced coal technologies such as coal gasification
- Communicate potential health impacts of power plant pollution
- Review proposed state and federal power plant rules.

Illinois Environmental Council, Springfield, IL *Nov.1997–Oct 2001*
Director Clean Air Programs

- Developed and lead a campaign to clean-up air emissions from coal-fired power plants on behalf of the Illinois Environmental Council.

Central States Education Center, Champaign, IL *1984-1997*
Central States Resource Center
Executive Director (1984-Aug. 1996);

- Responsible for fundraising, program, staff development, board relations for the Centers. The Centers are two 35 year-old nonprofit organizations that assist citizens, governments, and businesses on solid, hazardous, and nuclear waste problems.

Illinois Environmental Council, Springfield, IL *Spring 1984*
Legislative Liaison

Procter & Gamble Inc., Cincinnati, OH *1982–1983*
Process Development Engineer

PRESENTATIONS

Gasification Performance, Presented at Platts 2nd Annual IGCC Symposium, Pittsburgh PA, May 10, 2006.

IGCC's Environmental Performance and Role in Mitigating CO2 Emissions, Infocast's IGCC Project Development and Finance Seminar, St. Louis, MO, November 14-16, 2005.

Public perception of Gasification, Presented at MIT Carbon Sequestration Forum VI, Cambridge MA, November 3, 2005.

Integrated Coal Gasification Combined Cycle (IGCC) Environmental Performance, Presented at Platts IGCC Symposium, Pittsburgh PA, June 2-3, 2005.

View from the States, Presented at Workshop on Gasification, sponsored by U.S. Department of Energy, the National Association of Regulatory Commissioners, the Gasification Technologies Council, and the Southern States Energy Board, United State Environmental Protection Agency, Knoxville TN, April 12-13, 2005.

Integrated Coal Gasification Combined Cycle (IGCC): Environmental Impacts and Policy Implications, Presented at STAPPA/ALAPCO Fall Membership Meeting, Couer d'Alene ID, October 27, 2004.

Coal Gasification-Air Pollution and Permitting Implications of IGCC, Presented at USEPA's Air Innovations Conference, Chicago, IL, August 2004.

The BACT Analysis: Does IGCC Meet the Test?, Presented at Workshop on Gasification Technologies, sponsored by U.S. Department of Energy, the National Association of Regulatory Commissioners, the Gasification Technologies Council, and the Southern States Energy Board, Indianapolis, IN, June 2004.

Coal Gasification: Hedging Against Climate Change in the Power Sector, Presented at the Western Governors' Association Energy Summit, Albuquerque New Mexico, April 14, 2004

IGCC as LAER/BACT for the Production of Electricity from Coal, presented at the 20th Annual International Pittsburgh Coal Conference, Pittsburgh PA, September 15-19, 2003.

OTHER ACTIVITIES

Co-Chair, Technologies Subcomitttee, Clean Coal Task Force, Westerrn Governors' Association, May 2005- Present